

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
US Department of Commerce  
United States Patent and Trademark  
Office, PCT  
2011 South Clark Place Room  
CP2/5C24  
Arlington, VA 22202  
ETATS-UNIS D'AMERIQUE

In its capacity as elected Office

Date of mailing:

01 March 2001 (01.03.01)

International application No.:

PCT/EP00/05099

Applicant's or agent's file reference:

IE0000085-7-

International filing date:

02 June 2000 (02.06.00)

Priority date:

20 August 1999 (20.08.99)

Applicant:

COSTA, Mauro et al

1. The designated Office is hereby notified of its election made:



in the demand filed with the International preliminary Examining Authority on:

02 November 2000 (02.11.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was



was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Form PCT/IB/331 (July 1992)

Authorized officer:

J. Zahra

Telephone No.: (41-22) 338.83.38

3854126

## PCT COOPERATION TREATY

## PCT

## NOTIFICATION RELATING TO PRIORITY CLAIM

(PCT Rules 26bis.1 and 26bis.2 and  
Administrative Instructions, Sections 402 and 409)

From the INTERNATIONAL BUREAU

To:

WATTS, Christopher, M., K.  
Lucent Technologies UK Limited  
5 Mornington Road  
Woodford Green  
Essex IG8 0TU  
ROYAUME-UNI

Date of mailing (day/month/year) 14 August 2000 (14.08.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference IE0000085-7-	
International application No. PCT/EP00/05099	International filing date (day/month/year) 02 June 2000 (02.06.00)
Applicant LUCENT TECHNOLOGIES INC. et al	

The applicant is hereby notified of the following in respect of the priority claim(s) made in the international application.

1. ☒ **Correction of priority claim.** In accordance with the applicant's notice received on: 04 August 2000 (04.08.00), the following priority claim has been corrected to read as follows:  
GB 20 August 1999 (20.08.99) 9919850.9  
☐ even though the indication of the number of the earlier application is missing.  
☐ even though the following indication in the priority claim is not the same as the corresponding indication appearing in the priority document:
2. ☐ **Addition of priority claim.** In accordance with the applicant's notice received on: , the following priority claim has been added:  
☐ even though the indication of the number of the earlier application is missing.  
☐ even though the following indication in the priority claim is not the same as the corresponding indication appearing in the priority document:
3. ☐ As a result of the correction and/or addition of (a) priority claim(s) under items 1 and/or 2, the (earliest) priority date is:
4. ☐ **Priority claim considered not to have been made.**  
☐ The applicant failed to respond to the Invitation under Rule 26bis.2(a) (Form PCT/IB/316) within the prescribed time limit.  
☐ The applicant's notice was received after the expiration of the prescribed time limit under Rule 26bis.1(a).  
☐ The applicant's notice failed to correct the priority claim so as to comply with the requirements of Rule 4.10.  
The applicant may, before the technical preparations for international publication have been completed and subject to the payment of a fee, request the International Bureau to publish, together with the international application, information concerning the priority claim. See Rule 26bis.2(c) and the PCT Applicant's Guide, Volume I, Annex B2(II).
5. ☐ In case where multiple priorities have been claimed, the above item(s) relate to the following priority claim(s):
6. A copy of this notification has been sent to the receiving Office and  
☒ to the International Searching Authority (where the international search report has not yet been issued).  
☒ the designated Offices (which have already been notified of the receipt of the record copy).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer V. Gross
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.83.38

Thus as a dual mode mobile terminal moves around within radio access areas, changes in the type of radio access can be expected as the available radio access systems change. As the mobile terminal moves between radio access areas routing area updates occur to notify the necessary support network of the new position of the mobile in the routing area associated with the particular radio access type. Changing between two radio access systems involves additional signalling and can also lead to outages during the transition between the two systems. The impact of the additional signalling and outages depends on the network architecture and the protocols chosen.

In addition, if a mobile terminal operating in the 3G mode of operation moves out of 3G coverage, then there is a consequential degradation in service when communication with the 2G core network is established.

It is an object of the present invention to provide an improved network architecture suitable for the introduction of UMTS in an existing GSM infrastructure.

### Summary of the Invention

According to the present invention there may be provided a packet switched network architecture having a first location area supported by a first radio access network connected to a core network of a first functionality and a second location area supported by a second radio access network connected to a core network of a second functionality, wherein at least a part of the first and second location areas overlap thereby defining a common location area, and the terminals in the first and second location areas may have either one or both of a first and a second mode of operation corresponding to the first and second functionalities respectively, wherein mobile terminals in the first location area having the second mode of operation may be connected by the first radio access network to a core network having the second functionality.

Claims

1. A packet switched network architecture having a first location area supported by a first radio access network connected to a core network of a first functionality and a second location area supported by a second  
5 radio access network connected to a core network of a second functionality, wherein at least a part of the first and second location areas overlap thereby defining a common location area, and the terminals in the first and second location areas may have either one or both of a first and a second mode of operation corresponding to the first  
10 and second functionalities respectively, wherein mobile terminals in the first location area having the second mode of operation may be connected by the first radio access network to a core network having the second functionality.
2. The packet switched network of claim 1 wherein mobile terminals in  
15 the second location area having the first mode of operation may be connected by the second radio access network to a core network having the first functionality.
3. The packet switched network of claim 1, wherein the first radio access  
20 network is additionally associated with a core network having the second functionality, the first radio access network switches packet transmissions from terminals in the location area to one of either the first or second core networks.
4. The packet switched network of claim 3, wherein the core network  
25 having the second functionality associated with the first radio access network is the one connected to the second radio access network.

10/069367<sup>7</sup>

PATENT COOPERATION TREATY

PCT

REC'D 18 OCT 2001

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference M.COSTA 7-7-4-6	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP00/05099	International filing date (day/month/year) 02/06/2000	Priority date (day/month/year) 20/08/1999
International Patent Classification (IPC) or national classification and IPC H04Q7/36		
Applicant LUCENT TECHNOLOGIES INC		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 6 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of three sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  11/11/2000	Date of completion of this report  16.10.2001
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Aguilar Cabarrus, E  Telephone No. +49 89 2399 7524  

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/05099

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

### Description, pages:

1,3-12	as originally filed			
2,2a	as received on	17/09/2001	with letter of	14/09/2001

### Claims, No.:

1-5	as received on	17/09/2001	with letter of	14/09/2001
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### Drawings, sheets:

1/4-4/4	as originally filed
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2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of: ☒

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP00/05099

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes:	Claims	2-5
	No:	Claims	1
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-5
Industrial applicability (IA)	Yes:	Claims	1-5
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**

**Reference is made to the following document:**

**D1:** SCHIEDER A ET AL: 'GRAN - A NEW CONCEPT FOR WIRELESS ACCESS IN UMTS' ISS. WORLD TELECOMMUNICATIONS CONGRESS. (INTERNATIONAL SWITCHING SYMPOSIUM), CA, TORONTO, PINNACLE GROUP, 21 September 1997 (1997-09-21), pages 339-345.

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. The present application does not meet the requirements of Article 33 PCT because the subject-matter of **claim 1** is not novel. This will be discussed in the following.

Document **D1** (see in particular abstract, lines 12-28; page 341, right column, lines 20-25; fig. 3) cited in the search report (applying the terminology of present **claim 1** and references of or to **D1**) discloses a packet switched network architecture having a first location area supported by a first radio access network connected to a core network of a first functionality and a second location area supported by a second radio access network connected to a core network of a second functionality, wherein at least a part of the first and second location areas overlap thereby defining a common location area, and the terminals in the first and second location areas may have either one or both of a first and a second mode of operation corresponding to the first and second functionalities respectively, wherein mobile terminals in the first location area having the second mode of operation may be connected by the first radio access network to a core network having the second functionality (abstract, lines 12-28; page 341, right column, lines 20-25; fig. 3).

This is the exact wording of present **claim 1** the subject-matter of which can consequently not be considered novel, contrary to Article 33(2) PCT.

As can be seen from figure 3, mobile terminals having the **second** mode of operation (**GSM-UMTS MT**) may be connected by the **first** radio access network (**URAN**) to a core network having the **second** functionality (**GSM-UMTS SGSN** or



GSM-UMTS MSC/VLR). Considering this the other way, mobile terminals having the **second** mode of operation (**UMTS MT**) may be connected by the **first** radio access network (**URAN**) to a core network having the **second** functionality (GSM-UMTS SGSN or GSM-UMTS MSC/VLR).

It must be noted that since the first and second location areas are overlapped defining a common location area, the definition of a mobile station being in a first or in a second location area gives no additional information. Being the mobile station in the first area, it could be in the common area and, therefore, in the second area as well.

It must be noted as well that in the claim functionalities or modes of operations are defined for the mobile stations and for the core networks, but not for the radio access network, ie. the functionality of both first and second radio access networks can be the same. Moreover, defining a determined functionality for a mobile station or for a core network does not imply that this mobile station or core network can not present another functionality as well.

Finally, and since the subject-matter of dependent claim 2 has been defined such as to specify that the core networks are separate, it seems that the subject-matter of claim 1 comprises the case in that both core networks, both radio access networks and both mobile terminals are together. This would represent the simple case of a network architecture with one dual-mode mobile terminal, one dual-mode radio access network and one dual-mode core network, which is disclosed in document **D1** (abstract, lines 12-28; page 341, right column, lines 20-25; fig. 3) as well.

2. Furthermore, the **dependent claims** do not appear to contain any additional features which, in combination with the features of any claim to which they refer, involve an inventive step for the reason that the subject-matter of said claims is **either in principle** directly derivable from the disclosure of document **D1** (see in particular page 341, paragraph 2.2.4 and fig. 3) **or** represents simple design details which are generally known to the person skilled in the field of packet switched telecommunication systems.

As a consequence, the **dependent claims** do not meet the requirements of Article

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/EP00/05099

33(3) PCT for lack of inventive step of their subject-matter.

**Re Item VIII**

**Certain observations on the international application**

The claims do for the following reasons not meet the requirements of Article 6 PCT in respect of **clarity**:

The subject-matter of **claim 5** presents a **repetition** of the subject-matter already defined in claim 4. The fact that the core network having the second functionality is connected with the first radio access network is already defined in claim 4, and that the core network having the second functionality is connected to a second radio access network is defined in claim 1.

# INTERNATIONAL SEARCH REPORT

Inter. Patent Application No  
PCT/EP 00/05099

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	BERRUTO E ET AL: "ARCHITECTURAL ASPECTS FOR THE EVOLUTION OF MOBILE COMMUNICATIONS TOWARD UMTS" IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS,US,IEEE INC. NEW YORK, vol. 15, no. 8, 1 October 1997 (1997-10-01), pages 1477-1486, XP000721279 ISSN: 0733-8716 page 7, column 2, line 19 - line 22	2
X	WO 99 39528 A (NOKIA TELECOMMUNICATIONS OY ;VIALEN JUKKA (FI); BRITSCHGI JUHANA ()) 5 August 1999 (1999-08-05) page 6, line 5 - line 19; figure 1	1,3,4
X	US 5 721 762 A (SOOD PREM) 24 February 1998 (1998-02-24) column 4, line 38 - line 41	1
P,X	WO 99 52307 A (ERICSSON TELEFON AB L M) 14 October 1999 (1999-10-14) abstract; figure 1	1,3,4
E	WO 00 42792 A (NOKIA NETWORKS OY ;OHVO MIKKO (FI); RAESAENEN JUHA (FI)) 20 July 2000 (2000-07-20) figure 1	1,3,4

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/EP 00/05099

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04Q7/36

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SCHIEDER A ET AL: "GRAN - A NEW CONCEPT FOR WIRELESS ACCESS IN UMTS" ISS. WORLD TELECOMMUNICATIONS CONGRESS. (INTERNATIONAL SWITCHING SYMPOSIUM), CA, TORONTO, PINNACLE GROUP, 21 September 1997 (1997-09-21), pages 339-345, XP000704485	1, 3, 4
Y	page 339, column 2, line 20 - line 25 — —/—	2

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

22 September 2000

Date of mailing of the international search report

04/10/2000

Name and mailing address of the ISA

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Authorized officer

Leouffre, M

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

PCT/EP 00/05099

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9939528 A	05-08-1999	FI 980208 A AU 8982298 A	30-07-1999 16-08-1999
US 5721762 A	24-02-1998	JP 9215061 A	15-08-1997
WO 9952307 A	14-10-1999	AU 3857199 A	25-10-1999
WO 0042792 A	20-07-2000	NONE	

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